

No. 815,079.

PATENTED MAR. 13, 1906.

F. DUTCHER.
RAILWAY SIGNAL TORPEDO.
APPLICATION FILED MAY 15, 1905.

Fig. 1.

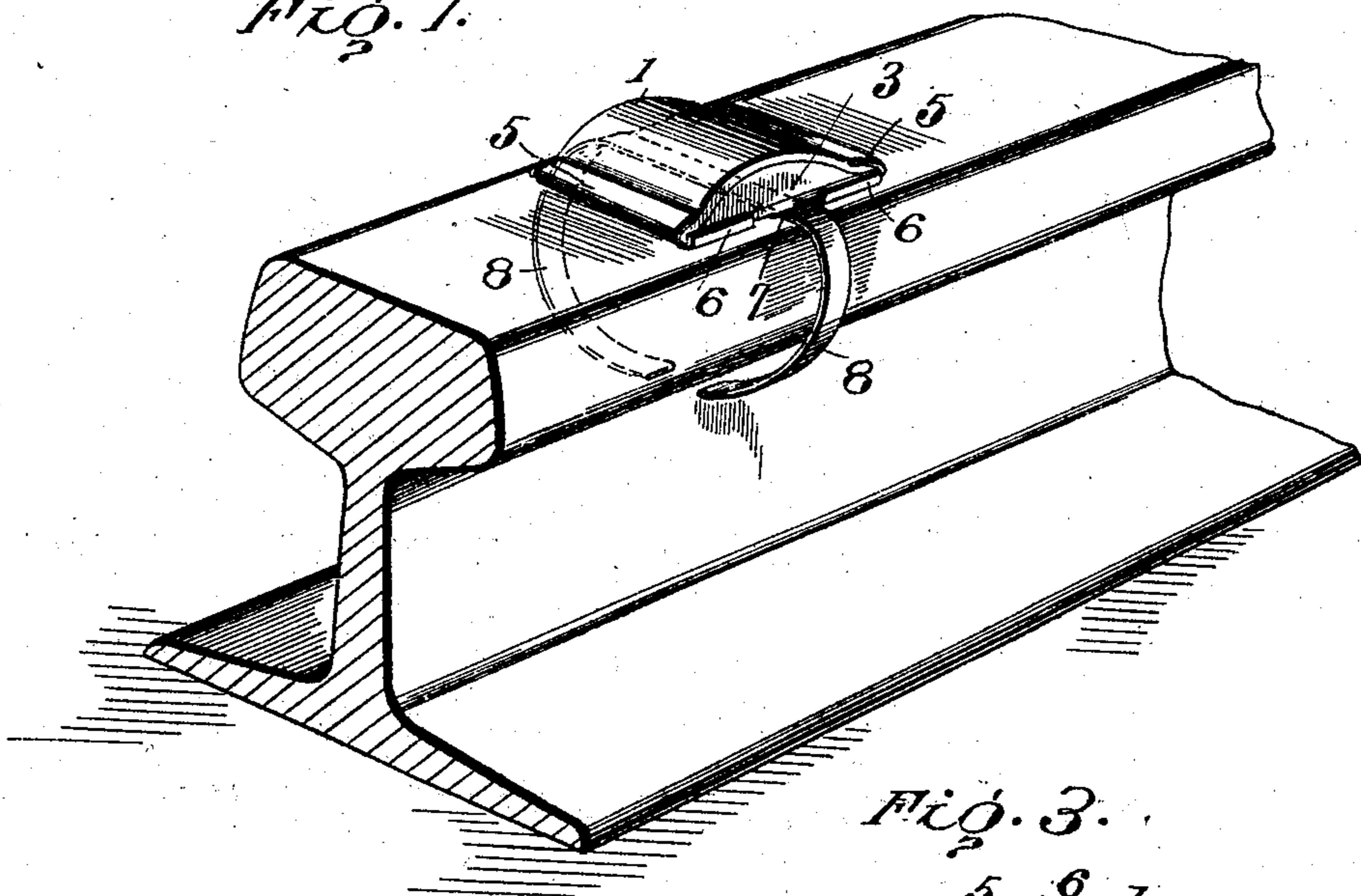


Fig. 2.

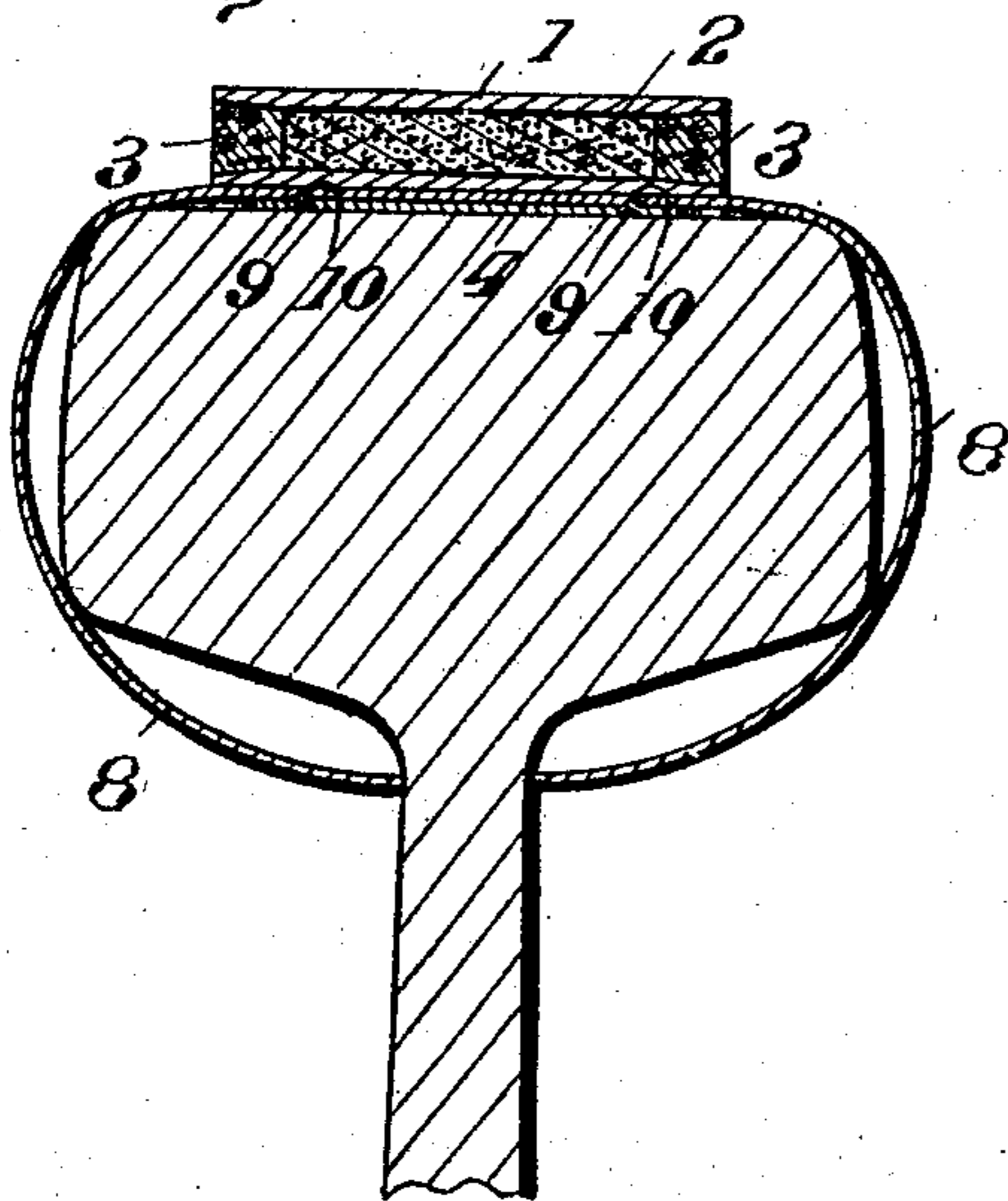


Fig. 3.

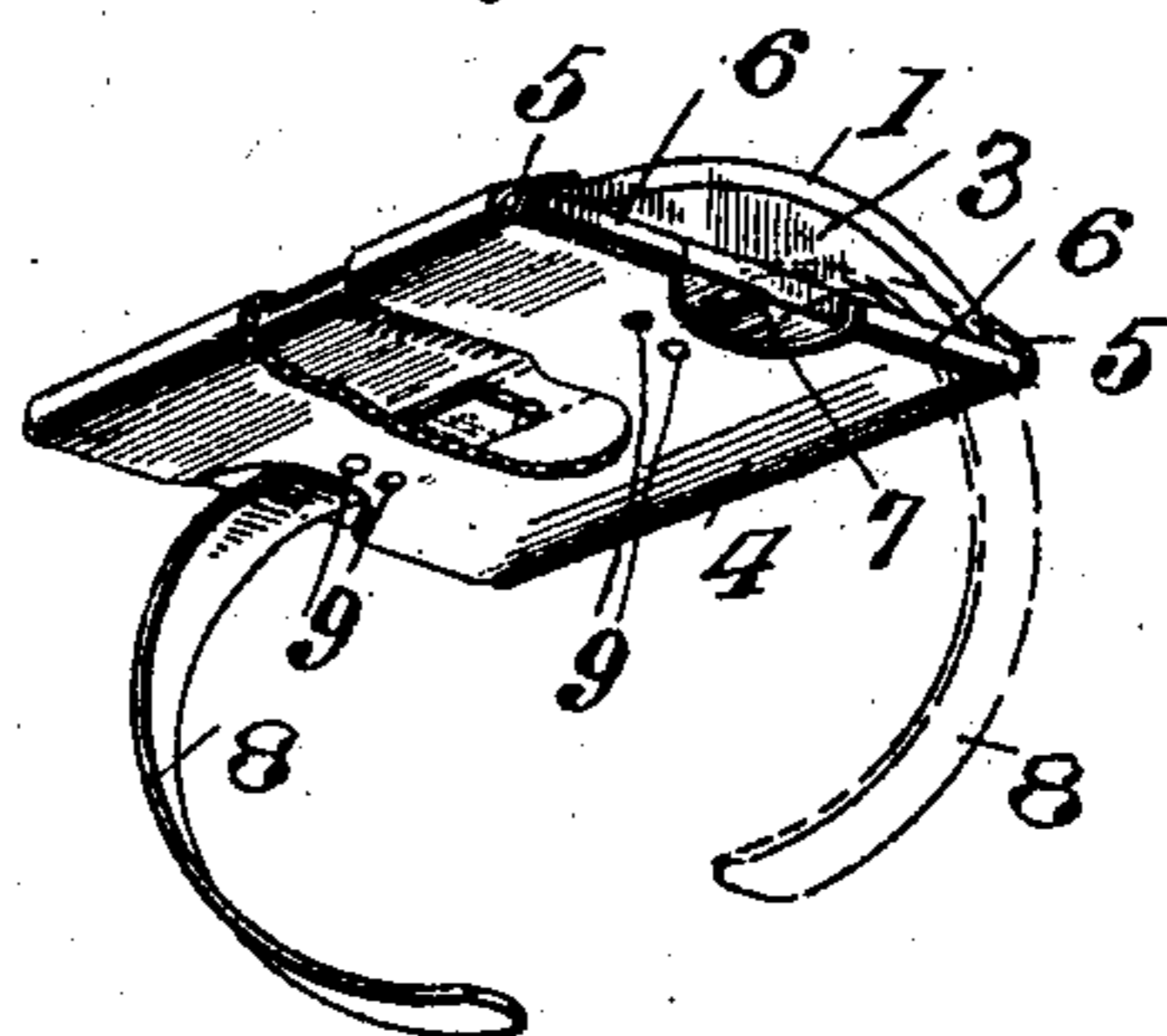
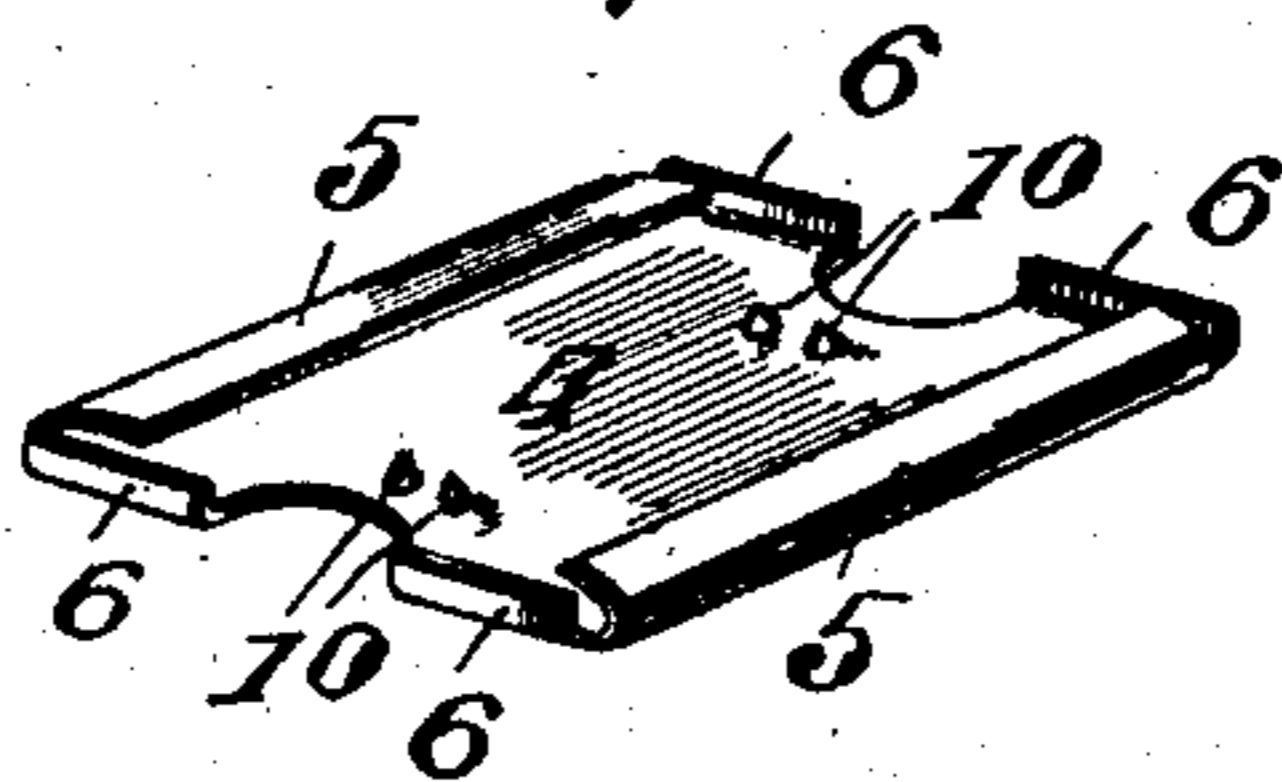


Fig. 4.



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RAILWAY SIGNAL-TORPEDO.

No. 815,079.

Specification of Letters Patent.

Patented March 13, 1906.

Application filed May 15, 1905. Serial No. 260,527.

To all whom it may concern:

Be it known that I, FRANK DUTCHER, a citizen of the United States, residing at Versailles, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Railway Signal-Torpedoes, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in railway signal-torpedoes, and pertains to an attachment for paper torpedoes, whereby the torpedo is firmly and rigidly held to the proper shape, the power of resistance under explosive force increased, therefore increasing the noise of the explosive, the attachment being so arranged that there will not be any lateral flying of any of the metal of the attachment, and whereby the attachment serves to unite the rail-engaging device or strap to the torpedo and in such a way that the overlapping flange of the metal attachment is such that any possible flying particles thereof will be in a direction longitudinal the track, and whereby a spring rail-engaging device may be effectively connected to a paper torpedo.

In the accompanying drawings, Figure 1 is a perspective view of my improved torpedo, the same being shown attached to the tread of a railroad-rail. Fig. 2 is a sectional view taken longitudinal the rail-engaging member. Fig. 3 is an under perspective of my improved torpedo, the same being shown partly in section. Fig. 4 is a detached perspective view of the metal attachment.

In carrying out my present improvement the paper case 1 of the torpedo is constructed of a tubular form, in which is placed the explosive compound 2, the ends of the case being closed by suitable plugs 3, which are preferably composed of a mixture of an inflammable substance, which may be sawdust and a binding-cement. This will preferably be placed in the ends of the case in a plastic state and is one of the features of my present improvement. Preferably the case is made from the section of a tube, which may be originally circular in form and compressed in the cross-sectional shape shown, or it may be formed of the cross-sectional shape in the first instance. Applied to the under side of the paper case is a metal base portion or attachment 4, which has inturned flanges 5 tightly clamping opposite edges of the paper case, as shown. This metal attachment with

its inturned flanges serves to hold the paper case rigidly in shape and also serves to increase the explosive resistance by giving rigidity to the structure. To prevent any possibility of the metal attachment becoming detached from the paper case by endwise movement thereon, I turn up the ends of the attachment into a very narrow flange 6, which is of a length or width about equal to the thickness of the paper shell, so that these flanges will not appreciably become within the line of rupture when the torpedo explodes. As all paper tubes are constructed from the winding of a sheet of paper, there remains on the outer side of the tube one end of the sheet. As it is absolutely necessary to have the torpedo waterproof by treating the same to a suitable waterproofing compound, it is important that this end of the sheet should not become loose, thus permitting moisture to get thereunder and capillate through the paper or fibrous structure to the explosive compound within. My attachment affords a means of holding the end 7 of the sheet of which the tube is formed by applying the attachment to that side of the tube at which the end of the sheet is located, as clearly shown in Fig. 3. As here shown, this end of the sheet of which the paper case is formed is located at the center of the bottom of the case. I desire it to be understood, however, that this location is not essential. It is only necessary that the end of the sheet should be engaged by the metal attachment at any point. The metal attachment will serve to hold the end of the sheet from becoming loose if it engages the same at any point, though, preferably, the end of the sheet is at the bottom of the case, because it does not require so much precision in the constructing of the case as it would require if it were located at a point to be clamped by the inturned flanges 5, as will be readily understood.

This improvement is particularly adapted for the attachment of a spring rail-engaging device 8 to a paper or fiber-paper torpedo, because it provides the strength necessary in the use of that form of rail-engaging device. I desire it to be understood, however, that my improvement may be used with other forms of rail-engaging devices—such, for instance, as the well-known lead-strap. The rail-engaging device is attached to the paper or fiber case by being passed between the metal attachment and the outer side of the bottom of the paper or fiber case. To prevent the

5 rail-engaging device from movement between these parts, it may be attached by a punch, as shown at 9, which will form projections in engagement with the rail-engaging device, as shown at 10.

10 By reference to Fig. 1 it will be seen that the inturned clamping-flanges 5 are located so that when the case explodes they will be thrown outward in the direction the train is traveling instead of laterally. While it is found in practice that these flanges do not fly in a way to cause injury, yet their location, as here shown, is such that if any part of it should be torn away it will fly in a direction 15 longitudinal the track, rather than laterally.

Attention is called to the cross-sectional shape of the case, which is with a top having curved or inclined walls extending in a direction toward the advancing car-wheel. 20 Owing to this construction, the flange 5 will be engaged by the wheel of the train before the torpedo is exploded and the explosion of the torpedo will tend to throw the other flange in the direction in which the train is traveling and not laterally. I desire also to call attention to the fact that by 25 applying the metal attachment so that the flanges extend in a direction longitudinal the tube this attachment can be applied, and should be applied, to the torpedo before it is filled with the detonating material. If the attachment was applied after the torpedo was filled and there should be any explosive compound at a point under these flanges, 30 the compressing of the flanges by a press would sometimes cause an explosion of the torpedo. The explosion of a torpedo in a factory should be avoided for two reasons. First, it is liable to injure the employee; secondly, 35 it is liable to set fire to explosive material that of necessity is in an exposed condition in a torpedo factory. By applying the attachment with its flanges extending longitudinal the tube the attachment can be applied before 40 the explosive material is placed therein with any desired force, and as the ends of the tube remain open after the attachment is applied the case can be readily filled and the ends plugged up and without any danger of 45 exploding the torpedo.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

55 1. An improved torpedo, comprising a fiber case composed of a section of a fiber tube, a metal attachment applied to the tube and having flanges extending in a direction longitudinal of the tube, the flanges overlapping the longitudinal sides of the tube leaving the 60 ends of the tube open for filling and plugging operations, and a detonating material placed within the tube.

2. An improved torpedo, comprising a fiber tubular case having a flat bottom and a 65 curved or inclined top, a metal attachment

applied to the outside of the bottom of the case, the attachment provided with flanges located at opposite longitudinal sides of the tube and overlapping and clamping the same at the junction of the top and bottom of the tube, whereby the end of the tube is open for filling purposes, and a detonating compound within the tube. 70

3. An improved torpedo, comprising a paper case, a metal attachment to the case having opposite inturned flanges clamping the said case, and a rail-engaging device extending in a direction longitudinal the flanges, whereby the torpedo is applied to the rail with the flanges so located that the explosion will throw the flange in a direction longitudinal the track, as contradistinguished from the lateral throw, as and for the purpose described. 75 80

4. An improved torpedo, comprising a fiber case having a flat bottom and a top curved or inclined in opposite directions, a metal attachment applied to the outer side of the bottom of the case, the metal attachment having flanges overlapping opposite sides of the case, a rail-engaging member attached to the torpedo and extending in a direction longitudinal the said flanges whereby the torpedo is supported on the rail with the flanges toward and away from the advancing car-wheel and whereby the car-wheel will engage one flange in advance of exploding the torpedo serving to prevent the flying of the tin attachment under explosion and to cause the opposite flange to be thrown in the opposite direction but longitudinal the track. 85 90 95 100

5. An improved torpedo, comprising a fiber case, a metal attachment having side flanges overlapping opposite sides of the case, and end flanges adapted to abut against the ends of the case, for the purpose described. 105

6. An improved torpedo, comprising a fiber case, a metal attachment having side flanges overlapping opposite sides of the case and end flanges of a width practically equal to the thickness of the wall of the case and abutting against the end thereof, for the purpose described. 110

7. An improved torpedo, comprising a fiber case composed of a tube formed of a sheet of fibrous material, and a metal attachment applied to the tube and engaging and holding the end of the sheet of which the tube is formed. 115

8. An improved torpedo, comprising a fiber case containing explosive compound, the said case composed of a tube, a metal attachment applied to the base of the tube and having overlapping flanges extending in a direction longitudinal the tube and engaging opposite sides thereof, and a rail-engaging member passing between the attachment and the bottom of the tube. 120 125

9. An improved torpedo, comprising a tubular fibrous case having an open end, an explosive 130

sive compound within the case, and an inflammable plug closing the end of the case to prevent the flying of dangerous particles from the closure of the tube when the torpedo is
5 exploded.

10. An improved torpedo, comprising a tubular fibrous case having an open filling end, an explosive compound within the case, and a closing-plug for the open end of the case con-

sisting of an inflammable substance and a binder therefor.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK DUTCHER.

Witnesses:

W. D. MANSFIELD,

C. L. ENFIELD.